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Report of the
Ontario Council
of Health on

Annex "D"

Education of the Health Disciplines

Ontario Department of Health
Honourable Thomas L. Wells, Minister



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REPORT OF
THE ONTARIO
COUNCIL OF HEALTH

**EDUCATION
OF THE
HEALTH DISCIPLINES**

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ONTARIO DEPARTMENT OF HEALTH
TWO BATHURST STREET, TORONTO, ONTARIO



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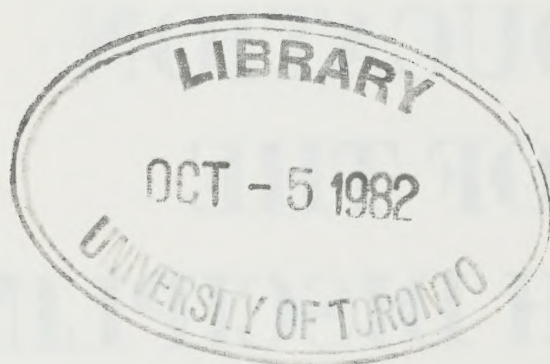
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**REPORT OF
THE ONTARIO
COUNCIL OF HEALTH
on
EDUCATION
OF THE
HEALTH DISCIPLINES**

ANNEX "D"

JUNE 1969

**ONTARIO DEPARTMENT OF HEALTH
Honourable Thomas L. Wells, Minister**



Produced for the
ONTARIO COUNCIL OF HEALTH
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CONTENTS

<i>Foreword</i>	<i>vii</i>
<i>Members of the Committee on Education of the Health Disciplines</i>	<i>ix</i>
<i>Acknowledgements</i>	<i>xiii</i>
RECOMMENDATIONS	3
REPORT OF THE COMMITTEE ON EDUCATION OF THE HEALTH DISCIPLINES	13
Introduction	13
Section I — General Considerations	17
Section II — Dentistry and its Allied Disciplines	27
Section III — Nursing Education	43
Section IV — Specifically Assigned Tasks	55
Section V — Matters of Special Concern	73

FOREWORD

The Education of the Health Disciplines Committee has presented to the Ontario Council of Health several reports which are collected in this annex. The Committee has identified basic principles with respect to its work, examined and made recommendations on several of the Health disciplines, and reported on other relevant educational matters. Study continues in the primary professions and disciplines allied to them.

The Committee has considered these matters from the point of view of the appropriateness of the location and general arrangements for the education of the health disciplines vis-a-vis both present and future requirements of the provincial health services.

It is to be appreciated that other Committees of the Ontario Council of Health, independent health care researchers, and various teachers and practitioners, are studying different facets of the health care scene. To be expected are the appearance of new factual information (which may, for example, permit the construction of a more complete profile of a given discipline) and fresh insights into the work role, functional relationships, staffing ratios in health care teams; such revelations will call for continuing consideration of health care services matters and periodic reporting. Therefore the Committee trusts that present reports will not prejudice the reception of future reports.

Readers are reminded that while the Ontario Council of Health has endorsed the documents as printed it did so without formally attempting to co-ordinate the views and recommendations presented with those of other Committees of Council. In view of this it is possible that Council could adopt a modified position when all the recommendations are corporately assessed against the general requirements of provincial health care services.

MEMBERS OF COMMITTEE ON EDUCATION OF THE HEALTH DISCIPLINES

Dr. W. J. Dunn, Chairman	Dean, Faculty of Dentistry, The University of Western Ontario
Miss Catherine Aikin	Dean, School of Nursing, The University of Western Ontario
Dr. F. Norman Hughes	Dean, Faculty of Pharmacy, University of Toronto
Dr. A. T. Jousse	Director, Division of Rehabilitation Medicine, University of Toronto
Dr. H. H. Kerr	Chairman, Council of Regents, Ontario Colleges of Applied Arts and Technology
Dr. R. I. Macdonald	Consultant in Medicine, Toronto
Dr. D. M. Young	Director of Laboratories, Toronto General Hospital

Sub-committee on Patterns of Training for Medical Laboratory Technologists and Technicians

Dr. D. M. Young, Chairman	Director of Laboratories, Toronto General Hospital
Dr. Wm. Anderson	Pathologist, Toronto General Hospital
Mr. H. G. Dillon	Assistant Executive Director, Ontario Hospital Association
Dr. W. W. Hughes	Stratford General Hospital

Dr. H. H. Kerr	Chairman, Council of Regents, Colleges of Applied Arts and Technology
Dr. A. H. Neufeld	Professor and Head, Department of Pathology, The University of Western Ontario
Dr. D. M. Schatz	Executive Director, Toronto Institute of Medical Technology
Mr. A. R. Shearer	Executive Secretary-Registrar, Canadian Society of Medical Technologists

Sub-committee on Nursing Education

Miss Catherine Aikin, Chairman	Dean, School of Nursing, The University of Western Ontario
Dr. H. M. Carpenter	Director, School of Nursing, University of Toronto
Sister M. Celestine	Director of Nursing Service, St. Joseph's Hospital, Hamilton
Mrs. T. Labekovski	Director, Cornwall Regional School of Nursing
Miss C. Maddaford	Regional Director, Victorian Order of Nurses, Toronto
Miss M. Morgan	Director of Nursing, Hamilton Civic Hospital
Mrs. M. Page	Supervisor, Public Health Nursing, Thunder Bay Health Unit

Sub-committee on Rehabilitation Medicine

Dr. A. T. Jousse, Chairman	Director, Division of Rehabilitation Medicine, University of Toronto
----------------------------	--

Dr. John S. Crawford

Assistant Professor of Medicine,
University of Toronto

Dr. David Symington

Associate Professor and Head of
the Department of Rehabilitation
Medicine, Queen's University

ACKNOWLEDGEMENTS

Technical support in the preparation of this report was provided through the auspices of the Research and Planning Branch of the Ontario Department of Health. Under Dr. G. W. Reid, Director, the following staff members worked with the Committee:

Miss I. Black	Research and Planning Officer (Nursing)
Mr. B. Gill	Senior Research Officer (Sociology)
Dr. A. Kapos	Research and Planning Officer (Social Psychology)
Dr. S. R. Lang	Research and Planning Officer (Medical)
Mrs. P. Stanojevic	Assistant Research and Planning Officer (Nursing)
Miss H. Wilson	Assistant Research and Planning Officer (Nursing) to June 1969

Additional technical support was received from:

Miss K. Arpin	Education Consultant, College of Nurses of Ontario
Miss L. Barr	Executive Director, Registered Nurses' Association of Ontario
Dr. L. E. Elkerton	Director, Public Health Laboratory Services, Ontario Department of Health
Miss N. I. Grigg	Director, Research and Statistics Division, Ontario Hospital Services Commission

Miss J. E. Ives	Senior Nurse Consultant, Nursing Services, Ontario Hospital Services Commission
Miss J. C. Macdonald	Director, College of Nurses of Ontario
Miss H. McCallum	Officer-in-Charge, Registered Nursing Assistant Schools, Ontario Department of Health
Miss E. M. Sewell	Assistant Director, Nursing Education, New Mount Sinai Hospital
Miss G. J. Sharpe	Senior Consultant, Nursing Services, Ontario Hospital Services Commission (retired)

Administrative and secretarial assistance was provided through the Secretariat of the Ontario Council of Health:

Mr. W. F. J. Anderson	Executive Secretary
Mrs. D. Dudley	Assistant to Executive Secretary

Special presentations were given by:

Dr. J. R. Evans	Vice-President, Health Sciences, McMaster University, and Member, Presidents' Research Committee, Committee of Presidents of Universities of Ontario
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Canadian Physiotherapy Association — Ontario Branch:

Miss M. Martin	President
Miss H. Saarinen	Professional Consultant
Miss L. Pollard	Representative

Ontario Hospital Services Commission:

Dr. D. J. Twiss	Commissioner of Hospitals
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Mr. A. H. Atkins	Consultant, Rehabilitation
------------------	----------------------------

Ontario Society for Crippled Children:

Dr. R. R. Mutrie	Medical Director, Ontario Crippled Children's Centre
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Canadian Arthritis and Rheumatism Society:

Mr. E. Dunlop	Executive Director
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Miss Ann Winter	Director of Professional Services
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Ontario Hospital Association:

Mr. H. Dillon	Assistant Executive Director
---------------	------------------------------

Representative of the Dental Profession:

Dr. J. D. Purves	President, Royal College of Dental Surgeons of Ontario
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Dr. H. M. Jolley	Vice-President, Royal College of Dental Surgeons of Ontario
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Dr. W. J. Spence	President, Ontario Dental Association
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Dr. K. F. Pownall	Secretary, Ontario Dental Association and Registrar, Royal College of Dental Surgeons of Ontario
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Dr. R. G. Ellis	Dean, Faculty of Dentistry, University of Toronto
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Miss S. Amer	Consultant in Dental Hygiene, Department of National Health and Welfare.
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Recommendations

RECOMMENDATIONS

The recommendations of this report are listed below to provide a quick guide for the reader. The Ontario Council of Health has approved the recommendations as presented.

1. THAT the following basic principles for the education of the health disciplines be accepted:
 - a. programmes for education and training should be conducted within an educational institution and a health service institution;
 - b. they should be based on the best and most suitable setting for each course;
 - c. they should be based on requirements for teaching, and/or research, and/or service, and/or administration;
 - d. they should be broad enough to enable a technician to move on to similar services in other locations;
 - e. they should provide some basis for advancement for competent graduates;
 - f. students should be educated and/or trained to use their ability to full measure;
 - g. techniques must be developed to determine the theoretical and practical knowledge required to carry out the work of each category of auxiliary health workers;
 - h. primary attention should be given to those who constitute a "health team."

Identification of Certain Fundamental Factors Associated with Education of the Health Disciplines

2. THAT the work of any health occupation be subject to analysis

so that its existence or claims for future expansion may be validated.

3. THAT formal requests to government from responsible institutions or parties for:
 - a. education and training programmes for new categories of health workers;
 - b. major revisions in present educational programmes for particular health occupations;
 - c. the setting up in a new location of a programme of education and training for an existing discipline;

include an analysis of the basic skills and knowledge requirements of the occupation in question.

4. THAT, as an aid to evaluation, a document be prepared which, in general terms, lists the different criteria which reflect the interests and requirements of the health community and may be applied to requests to government for:
 - a. new educational programmes for health occupations;
 - b. major changes in existing programmes;
 - c. the setting up in new locations of programmes existing elsewhere.
5. THAT practices which promote interprofessional education among the health disciplines be studied to the end that, if proved to be of benefit to the effective utilization of resources, their growth and/or replication might be encouraged. Such practices to be studied may include:
 - a. core curriculum design;
 - b. educational equivalents within or among health occupations;
 - c. systems analysis.

6. THAT the word "team" (as used in "health team," "nursing team," "rehabilitation care team," etc.) be examined and clarified as to its meaning and use when applied to groups of health care personnel.

7. THAT academic institutions, and other educational institutions for education and training of the health disciplines, be given government support beyond normal operating expenses both for ongoing evaluation of their educational programmes and for the necessary resources required to institute those desirable changes indicated by such evaluation.

Dentistry and Its Allied Occupations

8. THAT, depending on validated estimates of manpower requirements, planning commence immediately to establish a third dental school in Ontario.
9. THAT a dental consultant be associated with each developing health sciences centre establishing a faculty of dentistry.
10. THAT, where there is a demonstrable need, consideration should be given to establishing courses in dental assisting, at the secondary school level.
11. THAT one-year post grade XII courses in dental assisting should be initiated in colleges of applied arts and technology, where there is a demonstrated need for such courses and where these courses would not jeopardize any other which may be established at the secondary school level.
12. THAT, since one course in dental technician training is already in operation at George Brown College of Applied Arts and Technology, and since there appears to be no need for additional training programmes, no additional programmes for dental technician training be mounted at the present time.
13. THAT the two-year diploma level programme, as is existing or as may be expanded in university dental schools, continue to be available for dental hygienists.
14. THAT colleges of applied arts and technology be encouraged to study the feasibility of mounting diploma courses in dental hygiene in their institutions, such feasibility studies to include the ability of the college to provide and/or arrange for the requisite instruction in basic sciences, adequate and properly supervised clinical experience, and, generally, to meet approved standards for accreditation.

15. THAT there is a need for some dental hygienists to be educated to the degree level for positions in teaching and in senior administration.
16. THAT the legislation and regulations which restrict the practice of dental hygiene to females be repealed.

Nursing Education

17. THAT, at degree and graduate degree level:
 - a. the Chairman of Council request the College of Nurses to investigate the feasibility of a universal application form with multiple choice of school, to include both the diploma and university schools;
 - b. the individual university schools of nursing be encouraged to expand their enrolment at an early date and actively to seek solutions to overcome the deterrents to such expansion;
 - c. university schools of nursing establish priorities in their own communities for the use of clinical facilities that would be required by them;
 - d. the individual university schools of nursing be requested to explore ways and means to identify and recruit graduates of diploma schools of nursing into the post-basic baccalaureate programmes, and to find ways of offering baccalaureate nursing education to the registered nurse on other than a full-time basis, such as summer sessions, evening classes and programmes in satellite communities;
 - e. a second graduate degree programme in the specialty areas of nursing be established in Ontario as soon as possible;
 - f. ways and means be found to offer education to the baccalaureate prepared nurse in preparation for leadership roles in nursing education and specialty areas, such courses to count as credit towards a graduate degree;
 - g. financing for capital expenditures and operating costs of existing university schools of nursing be reviewed by the Provincial Government and senior university officers;

- h. until a review of the problems of expanding the present university schools of nursing has been carried out, no new university schools of nursing be established.

18. THAT at diploma level:

- a. some diploma programmes in nursing should eventually be established within colleges of applied arts and technology, with the approval of the appropriate agencies.

It is agreed that there be three phases to the development of such programmes:

- (1) a co-operative programme, where colleges provide special academic services to the hospital school or the regional school of nursing;
- (2) an integrated programme: in this phase, liaison between the hospital and the college would be much closer;
- (3) an autonomous programme:
 - (a) in this phase, the college would assume full responsibility for all aspects of nursing education after passing through phases (1) and (2);
 - (b) where no regional school of nursing has been established, phases (1) and (2) may be omitted.
- b. the plans for the establishment of regional schools of nursing be extended as quickly as possible to meet the geographic needs of the Province, in addition to, but where appropriate co-ordinated with, the development of the college of applied arts and technology programme.

Nursing Education and Supporting Resources

- 19. THAT the Department of Health find ways and means whereby interdepartmental communications could be developed, in order to facilitate co-ordinated planning for the development of educational programmes for nurses and auxiliary nursing personnel and to ensure the availability and effective utilization of required clinical facilities for the various programmes.

Education and Training of Nurses for Public Health Services

20. THAT in respect to the preparation of public health nurses:

- a. the Ontario Council of Health recommend, contingent upon the agreement of the institutions concerned, the establishment in Ryerson Polytechnical Institute, on an experimental basis for five years, a certificate course in public health nursing, and it is suggested further that an advisory committee be set up with membership from Ryerson Polytechnical Institute, public health nursing fields, and the University of Toronto, to study the curriculum and other matters associated with the programme;
- b. universities which are offering certificate courses in public health nursing be encouraged to continue in this field at least while this matter is under study;
- c. a study be conducted in at least two official agencies, one urban and one urban-rural, to determine the composition of the team, the functions and responsibilities of each category of nursing personnel and their relationships to each other, and financial aid be made available for such study.

Orthoptic Ophthalmic Technicians

21. THAT the present general arrangements for, and location of, education and training of orthoptic ophthalmic technicians in the new School of Orthoptics at the Hospital for Sick Children be approved, and that, in so recommending, Council does not in any way wish to prejudice any statements it may make in the future about this discipline.

Evaluation of the Usefulness of Existing Health Service Occupations

22. THAT the Council of Health consider as an urgent matter the need to obtain for use by the Committee substantial information concerning:

- a. the appropriateness of the care which health workers are providing for the people of Ontario;
- b. the efficiency of health workers of Ontario in carrying out the tasks which they are undertaking.

23. THAT the Council of Health, in order to obtain the information which is needed by the Committee, proceed as soon as possible to identify, commission and support adequately experienced and proven individuals and/or organizations to:
- a. identify manageable problems in the areas of uncertainty alluded to in the preamble to this recommendation;
 - b. draw up investigative projects bearing upon the resolution of the problems so identified;
 - c. work through and bring to completion the investigative projects which, in the judgement of the Council, seem likely to provide the Committee with information bearing directly on the Committee's capacity to function effectively in respect to its terms of reference.

Diploma Course in Physiotherapy*

24. THAT the proposal that a new diploma course in physiotherapy be established at Mohawk Community College of Applied Arts. and Technology, to be developed conjointly by the College, the Division of Health Sciences, McMaster University, and the Hamilton Health Association, be endorsed in principle.

* Recommendation 24 has been added after publication of the initial volume *Report on the Activities of the Ontario Council of Health.*

Report of the Committee

REPORT

Introduction

Terms of Reference

The Committee on the Education of the Health Disciplines was given the following terms of reference by the Council:

To recommend on the location and general arrangements for education of the health disciplines.

Organization of the Report

The report consists of six parts. Part one, this introduction, describes the work of the Committee, its methods of investigation and study and reporting to Council. In part two, general considerations regarding education and training of health care personnel, together with conclusions and recommendations, are recorded (Section I). Next are reported investigations and studies of education of disciplines involved in delivering Dental Care Services, with conclusions and recommendations (Section II). Section III is similar but with respect to the education of nurses. Part five reports on Committee conclusions and recommendations on various specific matters which were referred to it from time to time (Section IV). The final section includes specific concerns of the Committee which it wishes to bring to the attention of Council together with appropriate recommendations (Section V).

Method of Investigation

As the Committee's task was further defined and clarified during its early meetings, it became evident that the basis for its investigations and studies in the education of the health disciplines would be a listing by type of the future personnel requirements of the provincial health care services. Since education and training of the health disciplines must be responsive to changing needs and concepts of health care services, precise definition of future practice patterns, work roles, functions, responsibilities, and required numbers of health care workers, are information items which would be helpful to educational planners. Responsibility for making such definitions was beyond the terms of reference of the Committee. To overcome these difficulties, the Committee developed a broad understanding of these factors, concluding that future patterns of health care delivery would call for greater co-ordination of services and altered work functions of personnel. In addition, the continuing rapid expansion of biological knowledge would demand that an increased range of skills and knowledge be taught health care personnel, and such would be reflected in new educational arrangements both of a general and a specific nature. As well, the Committee has had to study the provincial educational patterns at the post-secondary level which, with the introduction of the colleges of applied arts and technology and the growth of technological and technical institutes, has changed markedly in the sixties.

At the same time, the Committee had compiled for it profiles of the health occupations which provided capsules of information on present functions and numbers of personnel, arrangements for their education and training, and student financial assistance programmes.

The Committee early formed sub-committees on the education of nurses, the education of those personnel involved in the delivery of rehabilitation care, and the education of medical laboratory personnel. With respect to certain disciplines, the Committee has met with representatives of various professional associations and service agencies to gain their views and opinions.

From time to time specific matters were referred to the Committee for its decisions and recommendations. The Committee formed small work groups, the better to deal with these topics because for the most part basic information had to be obtained, expeditiously, from a number of sources.

The technique of on-site visits by various Committee members was employed on a few occasions when it proved necessary to obtain and substantiate the views and opinions of persons at the operating level.

A preliminary attempt to identify recognizable health disciplines in Ontario resulted in a list above forty in number. The Committee decided to arrange a priority list of disciplines which it felt were those needing to be studied early. The Committee felt that, within the context of provincial health services requirements, certain disciplines carried a higher priority for Committee study than others because of their key functions in health care delivery, their changing roles in relation to other occupations, or the increasing skills and knowledge requirements in their preparation. Certain of these disciplines are reported on in this document while others are still under study and will be subjects for future Committee reporting to Council.

Limitation of Committee Investigations

This report contains conclusions and recommendations to Council by Committee of certain principles which should govern the choosing of general locations and arrangements for the education of the health disciplines. As well, a number of fundamental matters relating to the analyses of occupations preparatory to the designing of curricula have been studied, while the specifics of curriculum design have not been dealt with. The Committee believes such specifics do not fall within its terms of reference, except as there may be from time to time a special matter referred to Committee which necessitates such study.

Time has not permitted the Committee to study all the health and health-related disciplines; however on-going work of the Committee will include the majority of them.

Future provincial health services requirements as to work functions, practice patterns, and numbers, with respect to graduate degree personnel, have not been established to date and therefore the Committee has not dealt with these aspects in detail in its present report.

SECTION I

General Considerations of Provincial Educational Arrangements

The Province of Ontario provides many and diverse educational resources for the preparation of the health and health-related occupations. The complexities of relating educational programmes to health services requirements are manifold and difficult for any particular educational institution to encompass. Patterns of health care delivery, the roles and functions of health care personnel, and the manpower numbers required, should be reflected in the policies and programmes of the institutions. Together with these matters is the necessity to co-ordinate educational programmes which, for a given discipline, might be at two or more scholastic levels. Therefore, educational institutions should consider service requirements and career patterns within a given discipline and its closely related disciplines; to separate the two might well result in a fragmentation of health careers, and gaps, wastage, reduplication and overlapping in the utilization of scarce teaching staff and expensive physical facilities.

From the report "Health Sciences in Ontario Universities," June 1966,* a general understanding may be gained of the problems with which universities have to deal. Also described are the kinds of organizational arrangements—both within and without the universities—that seek to help solve these problems. An example of recent university and government working relationships is evidenced by the co-ordination of university requests for support through

* A Report of the Presidents' Research Committee to the Committee of Presidents of Universities of Ontario.

review by the Senior Co-ordinating Committee (representing the Departments of Health and University Affairs and the Ontario Hospital Services Commission, with the Deputy Minister of Health as Chairman).

The past few years have seen the setting up of Health Sciences Centres in five universities of Ontario—Ottawa University, Queen's University, University of Toronto, McMaster University, and University of Western Ontario. These centres consolidate facilities for health sciences programmes, allowing basic departments of the biological and social sciences to service the needs of each of the health disciplines. Also, expensive core facilities for patient care, such as the teaching hospital and special clinics, may be better co-ordinated for use by the students of the various health disciplines. For these students, training together should facilitate working together in service following qualification.

The establishment of colleges of applied arts and technology has opened new dimensions for the education of health workers at the post-secondary level. These, along with courses in universities, hospital schools, and vocational institutes, require that the extent of the responsibility of each institution be determined. Also to be considered is the role of each institution when health services call for different levels of preparation of personnel. These matters call for co-ordination in planning with the institutions, among the institutions, and between the institutions and government.

There is then an increasing complexity and variety in educational and training programmes for the health occupations. It is interesting to note that there are in the United States 169 identifiable categories and sub-categories of health workers. Here in Ontario, the Committee on the Healing Arts has interviewed 39 individual disciplines. Branching and multiplication of educational programmes continue because of specialization, sub-specialization, and the requirement to keep up with new knowledge and techniques. Funding arrangements are complex and require administrative mechanisms for co-ordination. To these variables may be added yet another of serious import: the systems of health care delivery, in the 70's and 80's. New patterns and systems for the provision of health care services will surely affect compositions of groups or teams of health care workers, with attendant work modifications or redefinition becoming mandatory.

At the provincial educational and service levels there are tangible

steps being taken to make the greatest economic use of relatively scarce teaching personnel, facilities, and funds. The establishment of the Senior Co-ordinating Committee, the Council of Regents as advisor to the Minister of Education on the colleges of applied arts and technology, the Ontario Council of Health, and the Department of Health's Research and Planning Branch, show government administrative and advisory arrangements dealing with these matters. There is also a need to apprise secondary school vocational guidance counsellors of the latest information and trends in the provincial health field relative to the health occupations. It is imperative that manpower decisions, on numbers and distribution of workers, be included in planning for education in the health disciplines. Regionalization will help to identify health services priorities and these will have effect on district or local demands for personnel and facilities which in turn will have implications for educational planners within that region.

At the educational level, universities, community colleges, and clinical training centres, are becoming increasingly aware of the need to integrate and co-ordinate staff work activities, teaching and laboratory facilities, and student educational programmes. Certain operational arrangements have emerged as a result: "core course programmes," "staff cross appointments," and local co-operation between universities and community colleges are examples that may be cited which appear to be rational and logical. For these teaching centres, programmes in continuing education, work specialization, and the demand for new knowledge and skills to be taught, cause perplexity and difficulty in implementation.

At the service level, many practitioners of health care are calling for: (a) the designing of rational health care delivery systems; (b) accurate job descriptions for any discipline in any work setting as a basis for rational economic work performances; (c) changes in traditional occupational roles; (d) the application of new professional knowledge and techniques (e.g., in administration, personnel management, systems analysis, data processing); (e) on-going evaluation of task performance.

Comments

It is clear that the increase in biomedical knowledge to be translated into utilizable form at the health services' level requires that an increased range of skills and knowledge be acquired by health

personnel. This suggests alterations in basic programmes, the institution of new programmes at a higher or lower level of preparation, and the necessity for disciplines to be evaluated. An increased production of researchers, administrators, and teachers, must accompany such changes. A cadre of teaching, administrative, and research personnel, must be prepared a higher levels to support the service.

Continuing education should exist to facilitate greater career flow so that advancement may be more readily achieved. Health personnel should also be able to assume new roles, move to other locations or transfer to a closely related discipline. These points have implications for interdependence among educational institutions: For example, it is unlikely that community colleges outside the sphere of a health sciences centre could successfully mount a diploma programme which required highly specialized professional health discipline teaching staff or specialized clinical teaching facilities.

Conclusions

The Committee recommends to Council several basic principles to serve as a general guide in matters relating to the education of the health disciplines.

RECOMMENDATION 1

THAT the following basic principles for the education of the health disciplines be accepted:

- a. programmes for education and training should be conducted within an educational institution and a health service institution;*
- b. they should be based in the best and most proficient institute for each course;*
- c. they should be based on requirements for service, teaching, research, or administration;*
- d. they should be broad enough to enable a technician to move on to similar services in other locations;*

- e. they should provide some basis for advancement for competent graduates;*
- f. students should be educated and/or trained to use their ability to full measure;*
- g. techniques must be developed to determine the theoretical and practical knowledge required to carry out the work of each category of auxiliary health workers;*
- h. primary attention should be given to those who constitute a "health team."*

Further Basic Considerations

So far in this section, the Committee has considered generally the provincial scene for education and training of health care personnel with respect to health services requirements, the available educational resources, and clinical facilities. In this part will be considered general matters involved in the planning and evaluation of educational programmes. Recommendations are to assist in translating the above-stated general principles into practical applications for programme planning and evaluation.

1. The Contribution of a Given Discipline to Society

The Committee has identified a fundamental need to analyze the work and function of any health occupation. Quite apart from deciding whether an occupation requires up-grading (or down-grading) in terms of educational content, etc., there are legitimate, earlier questions: Are these workers truly required? Is their continued existence economically feasible? Can part of their work be performed by a less-well and less-expensively trained worker? Has their work been eclipsed or made non-relevant by new health or medical scientific insights? Why is this discipline doing what it is doing? Is this discipline doing what it thinks or says it is doing?

Closely associated with these basic questions is another: If an occupation, because of new service responsibilities, requires that its workers be prepared at different levels of education (i.e., diploma or degree), how is this to be solved so that legitimate interests are best served and met? If *all* interests cannot be served, which or whose will be compromised?

Comments and Conclusions

Provincial studies are under way or being planned in health care systems, work roles, team arrangements of personnel, and community health needs. Results will have implications for most occupations. As well, analytical techniques exist which can be employed in examining the functions of an occupation.

RECOMMENDATION 2

THAT the work of any health occupation be subject to analysis so that its existence or claims for future expansion may be validated.

2. The Appropriate Setting for an Educational Programme

The Committee believes that the making of recommendations as to the location and general arrangements for the education of a particular health occupation depends on three prior, crucial developments:

- i. The validation of that occupation's function as referred to above in 1, required to help to determine the appropriate curriculum content.
- ii. The development of a base line curriculum which identifies the appropriate educational level and setting for that curriculum's presentation. However, before such a curriculum is designed, an initial step is necessary.
- iii. An analysis of the health occupation in question as to its basic skill and knowledge requirements. While such an analysis may be easily made for certain health workers (such as food handler, hospital orderly) analysis of many occupations (medicine, nursing, physiotherapy) may be complex—especially for occupations whose functions or roles are in a state of expansion and change. Nevertheless such analysis is basic to making programme adjustments in response to changing patterns in health services.

RECOMMENDATION 3

THAT formal requests to government from responsible institutions or parties for:

- a. *education and training programmes for new categories of health workers;*

- b. major revisions in present educational programmes for particular health occupations;*
- c. the setting up in a new location of a programme of education and training for an existing discipline;*

include an analysis of the basic skills and knowledge requirements of the occupation in question.

3. The Appraisal of Educational Programme Proposals

There are prescribed administrative paths to be followed by responsible planning committees, institutions, or health professionals, promoting educational programmes, as they seek approval and financial support for their programmes. For example, community colleges must comply with certain Department of Education administrative requirements prior to submitting their final, formal requests for new programmes. Similarly, there are arrangements whereby universities and hospital schools relate to government. These enable individual requests for programmes in local institutions to be placed against broader provincial or regional considerations such as manpower priorities, requirements and distribution, patterns of employment and available funds, to list only a few.

Also, in the process from planning to implementation, numerous checks and balances are imposed upon programme proposals; i.e., proposals are subjected to evaluations by different responsible groups at different “levels” of progress. Each group has criteria by which it evaluates proposals which, understandably, may differ for each group. The Committee has identified a need for a list of criteria, drawn from the health community’s* interests and requirements, which it could employ in making recommendations on the general location and arrangements for the education in the health disciplines. Such a check list of criteria, useful to the Committee, would also be of value to other senior advisory bodies such as the Council of Regents within the Department of Education.

RECOMMENDATION 4

THAT, as an aid to evaluation, a document be prepared which, in general terms, lists the different

* The “health community” is here to be interpreted as being composed of all persons or organizations who have an interest in or responsibility for health matters.

criteria which reflect the interests and requirements of the health community and may be applied to requests to government for:

- a. new educational programmes for health occupations;*
- b. major changes in existing programmes;*
- c. the setting up in new locations of programmes existing elsewhere.*

4. Interprofessional Educational Arrangements

The Committee has discussed generally the matter of interprofessional education in health sciences centres, community colleges, institutes of technology, and hospital schools. To come to grips with its main function, the Committee has discerned a need to gain a clearer understanding of such ideas as “core curriculum,” “systems analysis” as a possible administrative tool for institutions, and “exchange educational credits” (or “educational equivalents”). These terms appear to have different meanings for different people, yet a central question is basic to them:

Given (a) that the relative scarcity of qualified teaching staff is one of the real constraints in mounting educational programmes; (b) that apparently certain disciplines have similar if not identical basic elements in their curricula; (c) that certain “block arrangements” for providing health care—such as mental health rehabilitation care, chronic care—employ health workers with certain common elements in their job specifications; (d) that service arrangements and scientific advances of the future may demand the retraining of many health workers and (e) that traditional lines of separation and areas of responsibility among universities and other post-secondary educational institutions are changing: How do we best arrange staff, teaching and clinical facilities to meet these considerations?

Examples of core curricula¹ and systems analysis programme² exist in a few Ontario educational institutions at this time. The idea

¹ Community colleges of applied arts and technology.

² University of Toronto, Division of Health Sciences.

of educational equivalents is coming forth in practice¹. These appear to have merit and justify consideration for further study and extension.

The question of interprofessional education among the health disciplines is one which the Committee feels should be asked of each health occupation: To what extent does this occupation permit the sharing of basic curricula and clinical facilities and the exchange of educational credits?

Therefore the Committee makes the following recommendation:

RECOMMENDATION 5

THAT practices which promote interprofessional education among the health disciplines be studied to the end that, if proved to be of benefit to the effective utilization of resources, their growth and/or replication might be encouraged.

Such practices to be studied may include:

- a. core curriculum design;*
- b. educational equivalents within or among health occupations;*
- c. systems analysis.*

5. Educational Programme Evaluation

Earlier in this Section, the Committee identified the need to analyze functions of new or traditional health occupations. There is also a need to evaluate programmes of education and training. Though these are times of change, it is entirely possible that programmes of education or training might roll on year after year—with minor changes here and there perhaps—without being subject to scrutiny and appraisal even though the discipline in its service role may have altered radically.

It is true that some existing programmes call for a periodic reassessment which may or may not be done. It is also true that a few planning groups state that their new educational programmes

¹ Mohawk College of Applied Arts and Technology (p. 55 ff.)

will have “built-in” evaluation methods. Techniques for evaluation do exist and require only adaptation to the specific situation, although it is fair to say that the matter is not a simple one.

In the belief that academic institutions should provide for on-going reviews of their educational programmes and their contents, and prepare plans for appropriate adjustments, the Committee makes the following recommendation:

RECOMMENDATION 7

THAT academic institutions, and other educational institutions for education and training of the health disciplines, be given government support beyond normal operating expenses both for on-going evaluation of their educational programmes and for the necessary resources required to institute those desirable changes indicated by such evaluation.

6. Terminology: “Team”

The Committee has used the word “team” frequently. It appears that there is confusion in the understanding and meaning of this term. What is a simple expression—“team”—is interpreted variously. Not all physicians, nurses, researchers, educators agree on what “the health team,” “the community nursing team” and other such phrases mean. Perhaps there is nothing occult, nothing of great and fundamental importance to be revealed by studying such expressions. Nevertheless misunderstandings abound which do hinder effective communication and dialogue within and among planning or service groups. It would be helpful if the term could be examined.

RECOMMENDATION 6

THAT the word “team” (as used in “health team,” “nursing team,” “rehabilitation care team,” etc.) be examined and clarified as to its meaning and use when applied to groups of health care personnel.

SECTION II

Dentistry and its Allied Disciplines

This Section presents certain background information, comments, conclusions and recommendations on dentistry and three occupations allied to it: dental assisting, dental hygiene, and dental technology. These are responsible for delivering dental care services.

In Ontario, personnel for these occupations are prepared at different levels in different institutions and work in diverse service arrangements which include private practice, public health programmes and, in some jurisdictions, a programme of dental examination and education under local school boards. There are instances in Ontario where all four disciplines work together in a service setting, but for the most part dentists and dental assistants work together in private practice arrangements, public health agencies, hospitals, and the armed services. At present, dentists outnumber dental hygienists by a factor of about ten so that relatively few dentists employ a hygienist in private practice.

The future dental care service requirements of the province are such that more efficient team arrangements will be required. The expansion of the work of the hygienist, to relieve the dentist of minor duties, has already occurred in some countries and is being considered in Ontario. Without being precise, it appears that geographical maldistribution of dental care personnel, in addition to too few numbers, hampers the delivery of adequate dental services to many people in Ontario. All of these factors have a bearing on the choosing of locations and arrangements for the preparation of dental care personnel.

The Committee is aware that Council has approved of its Manpower Committee's recommendation that demonstration projects in team dental care delivery be mounted with the view to testing out new roles for the various team members. This concept is endorsed by this Committee. It is to be hoped that from studies such as these will come forth basic skills and knowledge requirements for the various disciplines which can be translated into educational programmes of preparation.

DENTISTRY

Present Education and Training

Two universities in Ontario offer an educational programme leading to a D.D.S. degree. These are the University of Toronto, Faculty of Dentistry, and the University of Western Ontario, Faculty of Dentistry. The professional programme at the University of Toronto is of four years' duration, and requirements for admission are successful completion of one year of an acceptable university programme beyond Ontario Grade XIII. The programme at Western is of four years' duration, and admission requires completion of the second year of an honours programme or second year of a general programme with certain subject requirements.

Additional education and training in dentistry is available at the University of Toronto and the University of Western Ontario. Programmes are offered which lead to the degrees B.Sc.D., M.Sc.D., and Ph.D. Postgraduate diploma courses are available in the fields of Dental Public Health, Oral Surgery and Anaesthesia, Orthodontics, Paedodontics and Periodontics. Individual courses may also be taken by dentists who do not wish to interrupt their practices and short refresher courses are available to the dentist who wishes to review his knowledge of particular fields of dentistry or acquaint himself with newer methods and procedures in various clinical areas. In addition to these courses and programmes, and in co-operation with the Board of Directors of the Royal College of Dental Surgeons of Ontario, lectures and clinics on a variety of subjects pertinent to dentistry are presented to meetings of local dental societies throughout the province. Present dentist production of the above two schools is 125 from Toronto and 7 from the developing school in London (going to 52 by 1975).

Manpower Estimations

Future provincial dental health services estimates call for an increase in numbers of dentists to be graduated not only to provide for population growth but also to provide for an improved dentist-to-population ratio. The future dental care delivery arrangements will see more team groupings of dental care personnel which in turn may alter the work and functions of the team personnel. Such new arrangements may have implications for undergraduate and graduate training of dentists but it is difficult at this time to be precise about these aspects of dentist preparation.

Comments and Conclusions

The Committee believes that dentists must continue to be educated in faculties of dentistry of universities. As well, it is held that there is merit in effective interplay and co-operation among the health sciences and, accordingly, as new faculties become established they should be created as integral components of health sciences centres. There is a core curriculum applicable both to medicine and dentistry which, through cross appointments arrangements, should utilize more appropriately and economically both highly qualified teaching staff and expensive basic and clinical resources.

The Committee has considered the matter of class size in the question of increased production of dentists in the years ahead. There is no agreement to date as to what should be the optimum class size for undergraduate dental students. In addition, new insights into the teaching-learning situation and the employment of future communications media and audio-visual aids have not yet suggested that class sizes will alter markedly in the future. Also the necessity for the availability of clinical resources is such that the population size in the immediate catchment area of the dental school is a vital factor. The Committee has concluded that, although the Toronto School could be expanded by 25 students and the London School (by 1980) by 30 students, there will remain by 1980 the requirement for a third dental school.

The matter of postgraduate education for dentists has not been considered by the Committee. As the future role of the dentist becomes more clear it should be possible to identify skills and knowledge requirements more precisely and these will likely have implications for postgraduate training as well as undergraduate training.

RECOMMENDATION 8

THAT planning commence immediately for the establishment of a third dental school in Ontario.

- a. that when faculties of dentistry are being established in universities they be created as integral components of health sciences centres.*

RECOMMENDATION 9.

THAT a dental consultant be associated with each developing health sciences centre as it establishes a faculty of dentistry.

DENTAL ASSISTANTS

Role

A dental assistant works under the supervision of a qualified dentist. This person prepares instruments and dental materials, acts as a chairside assistant, develops X-rays, performs secretarial and stenographic duties and keeps records, accounts, and stockroom supplies in order.

Education and Training

There are no formal requirements for the education and training of dental assistants. The combined educational and training programmes which are available in Ontario are:

- a. a six-month evening course offered by various dental societies in the province;
- b. as part of a two-year (Grade XI and XII) academic programme at one of three collegiates in Ontario (West Hill Collegiate, Etobicoke Collegiate, and Lorne Park Collegiate); and
- c. a one-year post Ontario Grade XIII programme at a college of applied arts and technology (for example, St. Clair College, Windsor).

Approximately half of the student's curriculum in the secondary school programme consists of courses pertinent to dental assisting, the other half to regular academic subjects.

The evening course is open to persons employed in dental offices who have not had formal training as dental assistants. A minimum of Grade X education is required for acceptance into this programme. A student taking one of the collegiate courses is awarded a Secondary School Graduation Diploma at the end of Grade XII. After a minimum of six months' experience in a dental office, following completion of a recognized dental assisting course, the student may make application to the Ontario Dental Nurses' and Assistants' Association for a certificate as Certified Dental Assistant. The certificate is issued jointly by The Ontario Dental Nurses' and Assistants' Association and the Royal College of Dental Surgeons of Ontario.

There are modest fees for these courses; and there is no bursary assistance. No additional training for dental assistants is available beyond the certificate level.

Occupational Status

There are an estimated 4,000 dental assistants employed in Ontario (September, 1968). Dental assistants may be employed in dental offices, clinics, hospitals, or public health agencies. Duties are carried on under the direction and supervision of a dentist. The initial salary range of the dental assistant is \$2,600 to \$3,150 per annum.

There is no registration or licensing of dental assistants in Ontario. They may, however, be certified by the Ontario Dental Nurses' and Assistants' Association, and the Royal College of Dental Surgeons of Ontario, (jointly) after completing an approved programme for dental assistants and completing a minimum of six months' employment in a dental office. Dental assistants seeking certification must belong to the Ontario Dental Nurses' and Assistants' Association.

Indicated Future Requirements

The matter of future requirements for dental assistants has not been studied closely. The supply of these personnel appears presently to be adequate, although attrition rate is believed to be rather high. Offsetting high attrition is the fact that dental assistants can be fairly quickly prepared—a situation which is not true for dentists or dental hygienists. How the future dental "team roles" develop will determine the work and function of the dental assistant. It is not seen clearly at this time that a marked alteration will occur.

Comments and Conclusions

Dental assistants can be prepared fairly quickly. Arrangements for their training programmes can be expanded or multiplied on fairly short notice (one or two years from planning to student entry)—a situation which does not obtain for many of the health and health-related occupations. The Committee then does not believe that an expansion of training facilities at this time should be recommended.

Two means for formal training should be utilized in respect of dental assistants. The above outlined educational programmes at the high school level should continue. In addition there may exist a local need for a post-secondary programme which could properly be established in a community college if that college could develop the necessary resources. Boards of Education, Boards of Governors of community colleges, and officers of the local dental society should consult and co-operate in ascertaining local requirements and in establishing training programmes in dental assisting. As well, the Ontario Dental Nurses' and Assistants' Association and the Royal College of Dental Surgeons of Ontario should be consulted in the planning stages with respect to future certification of the graduates of the programme. The Committee believes this course at the community college level should be of one year's duration.

RECOMMENDATION 10.

THAT present educational programmes in dental assisting within secondary schools should continue to be offered and that, where there is a demonstrable local need, consideration should be given to establishing further courses in dental assisting at the secondary school level.

RECOMMENDATION 11

THAT one-year post grade XII courses in dental assisting should be established in colleges of applied arts and technology where there is a demonstrated need for such courses, where the community colleges can develop the resources, and where these courses would not jeopardize any other programme which may be established at the secondary school level.

DENTAL TECHNICIANS

Role and Occupational Status

Dental technicians, of whom there are approximately 600 employed in Ontario, work in dental laboratories and in some dental offices. Their primary function is to alter, repair or make artificial prosthetic devices used by dentists, such as dentures, bridges, inlays, crowns, metal clasps, or appliances for the straightening of teeth.

Technicians perform their services on the written prescription of their dentist-clients, and in this sense are dependent on dentists for their work. Except those employed directly by dentists, they work under the supervision or direction of a dentist and may be considered independently-operating workers providing a service to dentists.

Education and Training

There are two possible ways in which a dental technician may be trained in Ontario. He may enrol in a three-year combined educational and training programme at the George Brown College of Applied Arts and Technology, Toronto. Admission to this course of instruction requires that the student hold an Ontario Secondary School Graduation Diploma, with related options. Persons over 19 years of age who do not meet this requirement may, under certain circumstances, be admitted as mature students. Fees for this programme are \$175.00 per academic year. A diploma is awarded on completion of this three-year programme.

As an alternative to this course of study, the student of dental technology may enter an apprenticeship programme (usually of at least four years' duration) under the instruction of a registered dental technician, in a dental laboratory. Students are sometimes accepted for training in an apprenticeship programme with Grade X or XI education, although Grade XII is usually preferred, and is required for registration.

There is no bursary assistance available for the programme offered at George Brown College; and bursary assistance is not offered students in apprenticeship programmes, because they are paid a regular salary of approximately \$50.00 per week while they are being trained.

The Dental Laboratories Association of Ontario promotes

educational programmes to benefit its members. These, however, are informal and do not lead to advanced certification. There are no additional formal training programmes offered for dental technicians in Ontario.

Registration of dental technicians in Ontario is optional. In order to be registered a technician must be 21 years of age, have successfully completed Grade XII or equivalent, have served in Ontario as a dental technician for a period of at least four years, and passed the examinations of the Governing Board of Dental Technicians. These regulations are provided for under *The Dental Technicians Act, 1946*, amended in 1963.

An individual may practise as a dental technician without being registered, but he may not call himself a registered dental technician, and he may not own or operate his own laboratory.

Indicated Future Requirements

Although future provincial health service requirements for dental technicians are not clear at this time, it is unlikely that a marked change in the work role of these personnel will occur regardless of how the patterns of dental care delivery develop. There may be indications for an increase in numbers as future dental programmes become more extensive or inclusive either via private practice or public sponsored arrangements. The meeting of future requirements then for this discipline will likely be achievable by simple expansion of training programme resources.

Comments and Conclusions

Educational arrangements for dental technicians appear to be in hand. A rapid increase in numbers should be quickly achievable by expanding the number of programmes in a simple arithmetical way. There does not appear to be an immediate demand for an increase in numbers and present arrangements for preparation of these personnel at the George Brown College of Applied Arts and Technology are adequate.

RECOMMENDATION 12

THAT no additional educational programmes for dental technicians be established at this time.

DENTAL HYGIENISTS

Since widely divergent and strongly-held opinions characterize views on the education and training of dental hygienists, this paper will deal much more extensively with this subject than it has with the previous three disciplines. Deep appreciation is extended to Dean K. J. Paynter of the College of Dentistry of the University of Saskatchewan, the Chairman of the Committee on Dental Hygiene Education of the Council on Education of the Canadian Dental Association, for much of the material which follows.

Objectives of Dental Hygiene Education

The objective of the first dental hygiene education programme was “. . . to show the value of education and preventive treatment when applied to the mouths of school children.”*

While this is still highly desirable, it implies a more limited role for a hygienist than present practices justify. A modern statement of objectives should reflect this broader role.

In simple terms, the basic objective of dental hygiene education can be stated as follows:

—to improve the dental health of the population through a course of training that provides graduates with sufficient knowledge and skill to (a) act as auxiliaries for dentists in providing certain treatment and prophylactic services for patients in private dental offices, hospitals or clinics, and (b) educate people as to both the need for optimal oral health and the methods whereby individuals can help attain this status for themselves.

Principles Governing Dental Hygiene Education

The following principles, which should govern the establishment and operation of education programmes for dental hygienists, are proposed to ensure the highest quality of training together with maximum integration with other programmes of dental education:

- a. When plans are made for new programmes in dental hygiene education, and particularly where an innovation is being

* Steele, P. K. *Dimensions of Dental Hygiene*. Lee and Febiger, Phila. 1966. p. 485.

attempted, dental and dental hygiene representatives should be actively involved.

- b. A director of a dental hygiene programme may be either a well-oriented dentist, or a qualified dental hygienist. The director should be responsible directly to the administrative head of the institution in which the course is given.
- c. A core of full-time faculty should bear major responsibility for the organization of all phases of the course in dental hygiene, with the clinical aspects of the programme coming under the general supervision of a dentist. Part-time staff may be utilized, but all staff should fully understand the objective of the programme.
- d. Ideally, clinical practice for dental hygiene students should take place in a university dental clinic. Failing this, clinical training might take place in a university teaching hospital, provided a suitably supervised programme could be arranged.
- e. Dental hygiene education should never take place in a proprietary institution, or one which operates for financial gain.

Present Status of Dental Hygiene Education

(a) Initiation and Growth, U.S.A.

The first school in dental hygiene in North American was established by Fones in 1913 at Bridgeport, Connecticut. Several other schools were started in the United States soon after and by 1920 five were in operation. Over the next 30 years, 21 new schools were established so that, by 1950, 26 hygiene schools were operating. Since 1950 an additional 32 have begun, and at present about 58 schools of dental hygiene are in operation in the United States. In 1966-67 over 4,000 undergraduate students were registered in the U.S. schools, and 1,650 women graduated in 1966.

About two-thirds of the U.S. schools of dental hygiene in 1966-67 were located at universities, generally in conjunction with a College of Dentistry. Twenty-one schools did not have a close dental school affiliation; they were located in community colleges or technical institutes. Of these, 15 have been established since 1960. The current trend thus seems to be to develop dental hygiene schools outside the universities. About 18 U.S. schools

offer degree courses in dental hygiene, generally in conjunction with a diploma course.

(b) Initiation and Growth, Canada

Five schools of dental hygiene are now in operation in Canada with a total capacity of 104 students in each of two years. The first school was established at the University of Toronto in 1951; the other four, located at Dalhousie University, the University of Manitoba, the University of Alberta, and the University of British Columbia, were all established since 1960. All of the Canadian schools operate in association with a school of dentistry. No schools have yet been established in institutions other than universities.

No degree programmes have been established for dental hygienists in Canada, although a baccalaureate programme at the University of Western Ontario has been approved in principle, with admissions scheduled for September 1971.

Future Needs

The problem of forecasting the number of dental hygienists that will be needed, in even the near future, is extremely difficult, not only because one cannot predict with accuracy the magnitude of the need or demand there may be for the type of service rendered by hygienists, but also because the kind and amount of specific services hygienists perform is changing as is the hygienist's role in the overall scheme of providing dental health care. It has been suggested that within 15 years the number of hygienists in practice should be half the number of dentists, with a 25 per cent replacement each year due to deaths and retirement.* Presumably this refers to dental hygienists trained as at present, providing essentially those services being provided today.

Basically, the duties of the hygienist are the same today as they were 50 years ago, although some limited expansion both in scope and depth of service has occurred over the past few years. For example, in the area of oral prophylaxis, more permissive U.S. state and Canadian provincial regulations, coupled with use of improved instruments and the application of improved instrumentation principles and techniques, have resulted in better performance. Also,

* Dental Manpower Needs and Resources in the Atlantic Provinces. Institute of Public Affairs, Dalhousie University, 1966.

by increasing the depth of training of hygienists in these disciplines related to teaching, i.e. Psychology, Sociology, Principles of Education, and Dental Health Education, the hygienist has become a better teacher in schools and in public health units.

Some mention has already been made to a predictable increased employment of hygienists by dentists, but presumably they will also be employed much more widely in other areas involving dental health services. With increasing public concern with dental public health services and children's care programmes, more hygienists will be sought for employment in public health units throughout the country, for school dental education health services programmes and professionally-sponsored dental care programmes. Expanding hospital dental services will also increase the demand for qualified hygienists.

Even a conservative estimate of the number required for all areas in the foreseeable future becomes ridiculously high when equated against resources for training hygienists. As schools expand, recruitment of teachers will add to the need for more. The competition for trained personnel for all purposes may increase to the point where it will act against the best interests of dental care services.

Future Trends in Dental Hygiene Education

Two aspects of particular interest to the future of dental hygiene education in Canada relate to developments which have occurred in recent years in the United States, namely, the development of courses for dental hygienists in non-university institutions, and the development of degree programmes in dental hygiene.

Locale for Dental Hygiene Programmes

(a) Universities

All dental hygiene education in Canada at present is done in universities, and university involvement in the basic course will no doubt continue for some time, but not without change in orientation and character. When degree programmes for dental hygienists are begun in Canada, then components of the regular diploma courses should be reviewed and possibly redesigned with a view to ensuring that reasonable transfer of credit may subsequently be obtained toward a degree. Degree programmes must, of course, be presented in the universities.

(b) Post-Secondary Institutions Other Than Universities

Considerable increase in dental hygiene manpower in the United States has resulted from the rapid development of schools for dental hygienists in non-university, post-secondary institutions, i.e. technical institutes or institutes of applied arts and science. These programmes have not developed without problems. Academic entrance requirements are generally lower than for university hygiene courses and concern has been voiced that entering students may be of lower calibre than the higher university entrance standards would ensure. In addition, dental hygiene courses in technical institutes are less likely to be accepted for future university credit.

Recruitment of staff may be a more serious problem in non-university institutions. More staff are apt to be part-time, and they may be less well-qualified, assuming the more highly qualified staff are likely to seek the greater opportunities for advancement and the stimulus of a university environment. Finally, facilities for training may also be more limited in technical institutes than in the university dental college environment.

Clinical training for colleges of applied arts and technology trainees should ideally take place in dental school clinics through a mutually satisfactory arrangement between the colleges and the universities, although consideration could be given locally to developing other sites for clinical instruction. At the present time in Ontario no alternative is available.

Advanced Programmes for Dental Hygienists

Before proceeding to a discussion of details of advanced education for hygienists, it is worth while to comment briefly on current terminology, and to reflect on its implications. Usually, when referring to baccalaureate courses for dental hygienists, the programmes are referred to as "B.S. or B.Sc. programmes in Dental Hygiene," since they are in other fields such as Nursing. This term implies that a body of knowledge, a literature, and a scope for research exists, sufficient to justify four years of university experience, majoring in the subject of Dental Hygiene. Master's programmes go even further in this direction. Such an implication might be open to serious challenge.

It is probably more constructive, when planning, to think not in terms of "degree programmes *in* dental hygiene," but rather of

“degree programmes *for* dental hygienists.” That is, programmes at the university level should be either for graduates in dental hygiene, or for students in dental hygiene who wish to study further for a higher qualification, but majoring in education, administration, or public health, and not in dental hygiene *per se*. Credit for the dental hygiene component of the course should be granted toward the degree.

These thoughts are contained in the resolution adopted at the meeting of the Canadian Dental Hygienists Association in May, 1967.*

All of the degree courses for dental hygienists offered in the United States require four years of training beyond secondary school education, with the conventional two-year programme in dental hygiene included. About half of the programmes require two college years in arts and science followed by two regular years in dental hygiene; four programmes place the two dental hygiene years between the two years in arts and science, and five programmes place dental hygiene first and then two years of arts and science. Strangely, only two of the programmes integrate the arts and science courses with those in dental hygiene in a continuous four-year programme, an arrangement which should have distinct academic advantages over that of splitting the four years into two distinct components.

Only two or three U.S. degree programmes emphasize a major area for study such as education. Others offer a “balanced” programme of arts courses and science courses, but with little specific orientation. While there is no doubt that the hygienist can benefit as an individual from a broad training in the humanities, one should not be deluded into believing that, simply because additional courses have been taken sufficient to qualify for a university degree, the graduate is necessarily a better teacher, clinician or administrator.

If the objective of degree training for dental hygienists is to prepare teachers and administrators, as seems generally agreed, there would be advantages to orienting the arts and science component of the programme toward those disciplines that will be of either theoretical or practical use to the graduate in his more senior role. That is, the non-hygiene major should be in education and educational philosophy, sociology, or public health administration, etc.

* Bulletin, Canadian Dental Association, June, 1967.

Little data exist to establish whether the present advanced training programmes for dental hygienists are serving the purpose for which they were intended. Those that are available indicate that most graduates of the four-year programmes in the United States immediately accept jobs in dental offices, and do not enter into teaching or educational positions at a higher level. For routine office duties, four years is a long training period for a dental hygienist, and the salaries available are not commensurate.

Comments and Conclusions

Difficulty is foreseen in meeting the need for the number of hygienists that may be required in the future in Canada. Recent trends in the United States indicate some success in meeting the demand for hygienists by organizing training programmes in non-university, post-secondary institutions. If non-university facilities are to be utilized, regulations both for the approval of schools of dental hygiene and for the registration and licensure of dental hygienists will require amendment. It seems obvious that universities and dental schools alone are incapable of meeting the need for the training of adequate numbers of dental hygienists. Community colleges would be suitable institutions in which to establish programmes of education of dental hygienists, providing such colleges could develop the requisite instructional resources in basic sciences, adequate and properly supervised clinical experience and, generally, meet approved standards for accreditation. This last conclusion suggests that only those colleges within the sphere of a health sciences centre itself possessing a faculty of dentistry would be eligible to establish a programme.

Selected universities should consider setting up degree programmes for dental hygienists, with a view to meeting a foreseeable need for teachers and administrative leaders in this field. Degree programmes should preferably combine dental hygiene education with other courses such as in education or administration.

RECOMMENDATION 13

THAT the two-year diploma level programme, as is existing or as may be expanded in university dental schools, continue to be available for dental hygienists.

RECOMMENDATION 14

THAT colleges of applied arts and technology be encouraged to study the feasibility of mounting

diploma courses in dental hygiene in their institutions, such feasibility studies to include the ability of the college to provide and/or arrange for the requisite instruction in basic sciences, adequate and properly supervise clinical experience, and, generally, to meet approved standards for accreditation.

RECOMMENDATION 15

THAT there is a need for some dental hygienists to be educated to the degree level for positions in teaching and in senior administration.

RECOMMENDATION 16

THAT the legislation and regulations which restrict the practice of dental hygiene to females be repealed.

SECTION III

Nursing Education

Introduction

The Committee has addressed itself to the task of considering basic matters with respect to the educational requirements for nursing personnel. Nursing is practised by personnel prepared at three levels of qualification—the nurse with a baccalaureate or higher degree, the nurse with a diploma in nursing, and the nursing assistant.

Historically, in 1860, the first modern nursing education programme developed at an endowed school of nursing associated with St. Thomas Hospital in London, England. The idea of preparing nurses spread quickly to North America; however, the concept of the independence to permit the development of an educational programme was lost. Nurses were prepared in an apprentice-type system, geared to the work needs of the particular institution. In 1874, the first diploma school of nursing was opened in Ontario. Recognition of the need for additional education to prepare for leadership in nursing, as required by the changing conditions in society, resulted in the nurses seeking university education. By the 1920's, opportunity for graduate nurses to achieve a university education became available in Ontario. In the 1940's, the university programme for nurses began to change. The university faculty teaches all courses, academic and clinical, throughout the four years of the basic nursing course. The war years put great stress on nurse manpower resources. In response to this need, nurses examined their activities and delegated certain of these to the nursing assistant, a new category of worker. During the ensuing years many activities previously carried

out by nurses were transferred to dietary, housekeeping and clerical personnel.

The arrangements for the delivery of nursing service to people have evolved in response to societal forces. Concomitantly, the various types of personnel, their roles, functions, and the general arrangements for their preparation, respond to these influences as well. The Committee has attempted to examine many basic problems related to the general arrangements for the education of personnel needed, now and in the future, in order that nurses may deliver safe and effective nursing care to the people of Ontario. In addition, specific questions referred to the committee have been considered (Section IV). Recommendations to the Council of Health have arisen out of these deliberations.

The study of nursing with respect to education and training requires that many basic matters be taken into consideration. The career structure of nursing, the present patterns of preparation, the provincial requirements for nurses prepared at different levels, the present and foreseen distribution of available resources in meeting regional requirements, the present and future teaching staff requirements, the availability of clinical resources and educational institutions such as hospital schools, community colleges of applied arts and technology, and universities, and manpower profile characteristics, are some of the major items for detailed study.

So to study better these various matters, the Committee in early 1967 formed the Sub-Committee on Nursing Education.

NURSING EDUCATION AT DEGREE AND GRADUATE DEGREE LEVEL

Present Situation

Nurses with university preparation, both at the degree and post-graduate level, are needed to provide creative leadership in nursing in the hospital and the community, in clinical practice, in administration of nursing care, in teaching and research positions. Patients need nurses who can demonstrate a broad understanding of the forces which impinge upon their conditions in illness and in health and who can help them to mobilize their resources to do something about these conditions. Nursing services require nurses who can

administer the delivery of nursing care to patients and who can infuse new knowledge of the physical, social, and health sciences, into reasoned and scientifically-tested practice.

Manpower Committee predictions indicate that approximately 20 per cent of nursing personnel will require advanced preparation beyond the basic diploma. These predictions also forecast for the 1975-80 period that provincial requirements for baccalaureate and higher degree graduates will be for not only absolutely more but also relatively more. According to recent figures (1967) there were 6.2 per cent of employed nurses with a baccalaureate or higher degree in Ontario.* In 1969, 6.4 per cent of the students admitted to schools of nursing in Ontario were admitted to university schools of nursing.**

The Committee, in the light of this basic information, has examined the present and future potential of university schools of nursing—in terms of manpower production. Constraints against future expansion beyond present planning have had to be identified so that recommendations could be made to Council toward their alleviation.

To assist the Committee in making recommendations that would lead to accelerated expansion of university schools of nursing, the Research and Planning Branch of the Department of Health arranged a meeting of deans and directors of these schools on December 13, 1968. At that time, operational difficulties were identified. Such matters as recruitment, the need for a universal provincial application form, the availability of professional teaching, administration and research faculty staff, the availability of clinical facilities, and the requirement for graduate programmes, were documented.

University schools of nursing receive more applications from qualified high school graduates than they are able to accept. No information is available on the number of students who submit applications to more than one school or what happens to those not accepted. There is a need for an on-going study to determine the number of multiple applications, the number eligible for admission, the number rejected because of limited space, and the number

* Canadian Nurses' Association, *Countdown*, 1968, (Ottawa: Canadian Nurses' Association, 1968) p. 22.

** Report of the Director of the College of Nurses of Ontario, November 1969.

rejected because of qualifications (a) insufficient for any school, or (b) insufficient at one school but acceptable at another. There would seem to be a requirement for a universal application form offering a multiple choice of schools (in both degree and diploma programmes).

Only 226 students were admitted to basic baccalaureate degree programmes in Ontario in 1968 and the universities in large population areas were unable to admit all the qualified applicants. Two university schools of nursing are having difficulty in recruiting suitable applicants. At the same time, 48.9 per cent of students entering diploma schools of nursing in 1968 had seven or more Grade XIII credits. It is desirable that high school students with suitable qualifications be directed to university schools of nursing. Between health services requirements for degree nurses on the one hand, and the number of graduates from university schools on the other, there is a major bottleneck: the limited enrolment of certain university schools.

However, the problem of clinical facilities is crucial in any consideration of expansion of university schools of nursing and it has many dimensions. Some factors contributing to the slow development of these resources are inadequate financing, inability to recruit faculty, and an absolute shortage of community clinical facilities made so by different schools and faculties training various health and health-related personnel competing one with another. The Committee believes that, regardless of how much money is made available to any community for the development of clinical resources, the ultimate solution will be for the competing institutions to agree to priority distribution of what is available, or what is likely to become available. This means that, in a community which appears to have too few resources to meet the needs of its university school and diploma school (hospital or community college), the two schools themselves will have to establish priorities and these, so far as it is possible, should be made in the light of provincial nursing service requirements.

To increase the number of nurses with degree preparation, university schools need to include the diploma nurse as a candidate for admission. One university with a long established school of nursing does not offer education to the diploma nurse. The projections of another university indicate reduced enrolment of the diploma nurse. At the same time, the University of Toronto is experiencing a continuing and overwhelming demand from these nurses seeking degree preparation in the evening programme. This

university is considering a ceiling on post-basic enrolment, yet the success of its extension programme demonstrates the value of alternatives to the full-time programme.

There is, in Ontario, evidence of a shortage of qualified teaching personnel. Nurses with preparation in maternal and child health, paediatrics, psychiatry, medical-surgical, and public health, are needed immediately for faculty positions in universities. There is also evidence that we do not have sufficient facilities to prepare nurses for these positions. Only one Ontario university offers graduate degree programmes in nursing at the present time. These are in nursing education and nursing administration. A second university has submitted a proposal to its senate for approval. The proposal is to offer programmes in the clinical areas of psychiatry, medical-surgical, and community health nursing, in preparation for leadership roles in nursing education and nursing service.

The Report to the Committee of Presidents of Universities of Ontario, 1966, states:

It is an urgent requirement that graduate student training be expanded and broadened to include nursing education and the clinical specialties.

Further to this point, the Committee believes that it might be possible to find ways and means to offer postgraduate education to the baccalaureate-prepared nurse directed toward her occupying leadership roles in nursing education and the specialty areas. These courses at the postgraduate level could be taken over a period of time by the nurse who is quite unable to enter a master's programme under present arrangements.

Physical facilities in university schools of nursing are described as limited, inadequate, and unsatisfactory. To expand beyond present projections is impossible without additional libraries, office space and classrooms. The facilities in the clinical area are not satisfactory. There is a shortage of seminar and conference rooms, locker space, etc.

Present arrangements regarding formula financing are difficult for nursing faculties because of the nature of nursing education, e.g., the amount of education that takes place in the clinical setting and the high ratio of students to faculty.

Comments and Conclusions

The Committee has identified certain constraints relative to increasing the potential production of university schools of nursing. It is aware that its study of the topic has not been exhaustive, largely because of time limitations, yet feels that key points have been identified and these may be pursued by the appropriate groups. The Committee believes that, in spite of dire shortages of degree graduate nurses in the provincial health services, no new university school of nursing should be established until the operational constraints, above identified, have been mitigated by further study and action.

RECOMMENDATION 17

THAT, at degree and graduate degree level:

- a. the Chairman of Council request the College of Nurses to investigate the feasibility of a universal application form with multiple choice of school, to include both the diploma and university schools;*
- b. the individual university schools of nursing be encouraged to expand their enrolment at an early date and actively to seek solutions to overcome the deterrents to such expansion;*
- c. university schools of nursing establish priorities in their own communities for the use of clinical facilities that would be required by them;*
- d. the individual university schools of nursing be requested to explore ways and means to identify and recruit graduates of diploma schools of nursing into the post-basic baccalaureate programmes, and to find ways of offering baccalaureate nursing education to the registered nurse on other than a full-time basis, such as summer sessions, evening classes and programmes in satellite communities;*
- e. a second graduate degree programme in the specialty areas of nursing be established in Ontario as soon as possible;*

- f. ways and means be found to offer education to the baccalaureate prepared nurse in preparation for leadership roles in nursing education and specialty areas, such to count as credit towards a graduate degree;*
- g. financing for capital expenditures and operating costs of existing university schools of nursing be reviewed by the Provincial Government and senior university officers;*
- h. until a review of the problems of expanding the present university schools of nursing has been carried out, no new university schools of nursing be established.*

NURSING EDUCATION AT THE DIPLOMA LEVEL

Present Situation

Nurses with preparation at the diploma level, the type of preparation which has the longest heritage in nursing, are required to provide the day-to-day care of patients in a variety of settings. The diploma nurse plays a complementary role with the nurse with a baccalaureate or higher degree, and is aided by the nursing assistant.

Modern nursing has seen the base of its everyday practice expand explosively. Not only do we know more about the physical, biological, and pathological influences on man's health equilibrium but also we recognize the impact of environmental, social, and psychological influences on man. This knowledge makes it imperative that all nurses, not only the university-prepared ones, have a broad educational base for practice. In the past forty years, Weir¹, Lord², Mussallem³ and Naegte⁴ all document and point the way for improvement in nursing education.

Paralleling the rapid expansion of the base of knowledge for nursing practice, along with an increasing awareness of the need for social and psychological understandings, major changes in the provincial tertiary-level educational patterns are occurring. The 1960's marked the introduction of the community colleges of applied arts and technology. Education in an educational setting is more

effectively and efficiently offered than in a service setting. These colleges can provide instruction in basic biological and social sciences to meet the needs for this knowledge by the diploma nurse. A multi-discipline educational institution can supply instructional media and resources more efficiently than a single-discipline regional school of nursing. A larger educational setting and a heterogeneous mix of college students is an incentive to the recruitment of young people. Male recruits and mature students fit more readily into this type of setting than in a traditional school of nursing. In a multi-discipline educational institution there are economic savings in teaching, administration and building capital. Educational progression to university following preparation in a community college, for the able student, is an accepted principle.

Future Requirements

Approximately 50 per cent of the nurse manpower force will be staffed by the diploma nurse⁵. Changes in nursing and health care delivery systems may affect the demands for various functions which nursing personnel of various levels provide.

Comments and Conclusions

The Committee believes that the education of nurses at the diploma level may be based in community colleges of applied arts and technology. Such a fundamental change from hospital-based schools to these colleges will require phasing-over time. Therefore, some diploma programmes in nursing should eventually be established within colleges of applied arts and technology with the approval of the appropriate agencies. There should be three phases to the development of such programmes. Initially, there would be a co-operative programme where the colleges provide special academic services to the hospital school or the regional school of nursing. In the next phase, the integrated programme, the liaison between the hospital and the college would be much closer. In the final phase, the programme is autonomous. The college of applied arts and technology would assume full responsibility for all aspects of nursing education of the school of nursing, after passing through the co-operative and integrated phases. Where no regional school of nursing has been established, the co-operative and integrated phases may be omitted. The Committee also believes that the establishment of regional schools of nursing should be extended as quickly as possible to meet the geographic needs of the province, and this endeavour should be characterized by co-ordination with the

development of the potential of the local college of applied arts and technology with respect to nursing education.

RECOMMENDATION 18

THAT, at diploma level:

- a. some diploma programmes in nursing should eventually be established within colleges of applied arts and technology, with the approval of the appropriate agencies. It is agreed that there be three phases to the development of such programmes:*
 - (1) a co-operative programme, where colleges provide special academic services to the hospital school or the regional school of nursing;*
 - (2) an integrated programme: in this phase, liaison between the hospital and the college would be much closer.*
 - (3) an autonomous programme:*
 - (a) in this phase, the college would assume full responsibility for all aspects of nursing education after passing through phases (1) and (2);*
 - (b) where no regional school of nursing has been established, phases (1) and (2) may be omitted.*
- b. the plans for the establishment of regional schools of nursing be extended as quickly as possible to meet the geographic needs of the Province, in addition to, but where appropriate co-ordinated with, the development of the college of applied arts and technology programme.*

NURSING EDUCATION AT THE ASSISTANT LEVEL

Present Situation

The nursing assistant category arose in response to the nursing shortage during the Second World War. Since that time, nursing assistants have demonstrated their value in carrying out nursing activities for patients whose nursing needs are relatively stable. As the term implies, the nursing assistant aids the registered nurse who is ultimately responsible. Nursing assistants have proved invaluable in the care of patients whose nursing needs are not liable to change rapidly.

Future Requirements

Approximately 30 per cent of the nurse manpower force is to be supplied by the nursing assistant. The activities of the nursing assistant are being examined continually to ensure that the most appropriate and safe use is being made of this member of the nursing team.

Comment

The committee is continuing to examine registered nursing assistants to determine the most reasonable locations and general arrangements for their preparation. This work is incomplete. Recommendations in this area would be premature at this time.

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3. Mussallem, H. K. *Spotlight on Nursing Education*. Ottawa: Canadian Nurses' Association, 1960.
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5. Manpower Committee of the Ontario Council of Health, *Report to Council on Nursing Manpower, 1969*.

SECTION IV

Specifically Assigned Tasks

From time to time, the Committee has had referred to it specific matters for consideration and recommendations. These tasks are reported in this section.

1. A PROPOSAL FOR THE ESTABLISHMENT OF A DIPLOMA COURSE IN PHYSIOTHERAPY AT MOHAWK COLLEGE, HAMILTON

Government received, in the fall of 1968, a proposal that there be established a diploma programme in physiotherapy at Mohawk Community College of Applied Arts and Technology, at Hamilton. This programme is to be developed conjointly by Mohawk College, the Division of Health Sciences of McMaster University, and the Hamilton Health Association. The matter was referred to the Committee for its recommendation.

To appreciate unique points which might be presented in the proposal, the Committee decided to study present arrangements for the education and training of physiotherapists. It gained an understanding as to possible provincial health service requirements, although these had not yet been established specifically or precisely.

PRESENT SITUATION

Role, Function and Practice Patterns

There are estimated to be 1,150 physiotherapists practising in Ontario as of December 1968.

Annual infusion into the profession is estimated at 150, and annual attrition is estimated to be 10 per cent.

A majority of physiotherapists is employed in hospitals where special departments, under the direction of a physician, are equipped to provide a variety of treatments. Out-patient clinics and health centres, such as those administered by the Department of Veteran's Affairs, the Armed Services, the Canadian Arthritis and Rheumatism Society, and the Crippled Children's Foundations, employ physiotherapists. Many therapists have full- or part-time private practices and/or work in the offices of medical doctors, treating the patients of these private practitioners.

The primary function of the physiotherapist is to restore function to injured or disabled muscles, nerves and limbs due to, for example, poliomyelitis, nerve injuries, fractures, and muscle disabilities of various kinds. This restoration of function is accomplished by means of electrotherapy (heat, muscle stimulation and ultra-violet radiation), massage to prepare the way for movement, hydrotherapy, and remedial exercises. Treatment is given to a patient by a physiotherapist either by direction from a physician (in a hospital or clinic) or, if the therapist is in private practice, on referral by a physician.

Provincial law requires that the practising physiotherapist be licensed by the Board of Directors in Physiotherapy, under *The Drugless Practitioners Act*. In order to be licensed, the therapist must have completed a diploma course at an approved university, as well as a mandatory apprenticeship of 32 weeks. After being licensed, the physiotherapist may become a member of the Canadian Physiotherapy Association, a national organization which maintains the standards of the profession in Canada.

Education and Training

The physiotherapist is required to complete a three-year university programme in Physical Therapy (Queen's University) or in Physical

and Occupational Therapy, leading to a Diploma in Physical Therapy (Queen's) *OR* a Diploma in Physical and Occupational Therapy (Toronto), *OR* a Degree in Physical and Occupational Therapy (Toronto), *OR* a Degree in Medical Rehabilitation, B.Sc.M.R. (P.T.), (Western). After completing the programme, the physiotherapist must serve an internship of 24 weeks' duration in order to be registered and licensed. This internship may be started during the summer between the second and third years of the diploma or degree course.

There are three universities in Ontario which offer this course of instruction: the University of Toronto, Queen's University, and the University of Western Ontario. An additional two-year course is also available at the University of Toronto which leads to a Teacher of Physiotherapy Certificate. The certificate course is open to physiotherapists who have graduated from the diploma course and have, in addition to this, three years of practice in physiotherapy. Queen's University offers a one-year programme leading to a B.Sc. degree in Physical Therapy. This programme is open to graduates of the diploma course.

Admission to the diploma course at the University of Toronto and Queen's requires Ontario Grade XIII (4 subjects comprising at least 7 credits) or equivalent; a 60 per cent average; and (except in unusual circumstances) an age of less than 30 years. Admission to the course at the University of Western Ontario requires completion of the first year of a science degree programme at that University, or equivalent. Fees for these programmes range from approximately \$550 to \$676 per academic year.

FUTURE PROVINCIAL REQUIREMENTS

It is a moot point as to whether there is a sufficient number of physiotherapists to supply present health service requirements. No studies exist to show how differently prepared physiotherapists (degree or diploma) practise or are employed. As for the future, no thorough studies have been made as to what levels of preparation are likely to be required, nor have the numbers of personnel who will be needed to meet service requirements been estimated.

In spite of these difficulties, it should be possible to decide as to the appropriate location and arrangements for the preparation of

diploma physiotherapists. It was from this viewpoint that the Committee turned to examine the proposal from Mohawk College.

THE PROPOSAL

The proposal has been put forward by an advisory Committee with representation from the Canadian Physiotherapy Association, the Hamilton Health Association, Mohawk Community College of Applied Arts and Technology, and the Faculty of Medicine at McMaster University. This proposal has been endorsed by the following:

Mohawk College of Applied Arts and Technology
The Canadian Physiotherapy Association
The Canadian Medical Association Committee on Rehabilitation
The Faculty of Medicine at McMaster University, Hamilton
The Council of Regents of the Community Colleges of Applied Arts and Technology

In the background to the proposal, the Advisory Committee has studied future physiotherapy manpower needs for the Hamilton region and has come to the conclusion that indigenous programmes of preparation should be developed.

The Advisory Committee expresses the belief that any training facilities for physiotherapists should be developed in association with medical faculties of universities (this is in agreement with the 1965 Royal Commission on Health Services view on physiotherapy education). It also believes that since, within Hamilton, there is a health sciences centre at McMaster University, a group of university-affiliated hospitals, and an organization termed the Hamilton Health Association which is promoting further co-operation among service institutions, the local community college (Mohawk College) would be a suitable institution in which to establish a diploma programme of physiotherapy education. It also is aware that the university is making plans to introduce a degree programme which could admit community college diploma graduates in physiotherapy at an advanced standing level. This commitment has been made to the Advisory Committee and Mohawk College, although many details of the degree programme have not been worked through.

Here, the Committee of the Education of the Health Disciplines

would like to quote, from the proposal, the organizational and administrative arrangements, so as to admit of no misunderstanding with respect to the Ontario Council of Health's records:

"The School of Physiotherapy would be an academic programme within the Mohawk College of Applied Arts and Technology. Students would register at Mohawk College, have all rights and privileges pertaining to such registration and be subject to admission policies, standards, fees and discipline. This enrolment will permit them to participate fully in all student social, athletic and other activities. Upon graduation the student would receive a Diploma from Mohawk College . . .

"A close and effective relationship with the Faculty of Medicine, McMaster University, would be maintained in order to provide:

1. the assurance of academic quality and content in the medical science courses,
2. the opportunity for the physiotherapist in training to learn with, and relate to, other persons in the health related professions, including medical students, physicians, nurses and occupational therapists, clinical psychologists and social workers,
3. the clinical facilities of McMaster University teaching units in the regional rehabilitation hospital and other community hospitals,
4. the support of the Faculty of Medicine in the recruitment of competent staff, and
5. the University's resources in research, library and educational aids.

"An Advisory Committee of the School of Physiotherapy would be established with the following membership:

- two representatives from the Canadian Physiotherapy Association,
- two members of the Faculty of Medicine, McMaster University,
- two representatives from the faculty of the Mohawk College of Applied Arts and Technology, and
- two representatives from the Hamilton Health Association.

“The Chairman would be in addition to the above representatives, and be selected by the Advisory Committee, preferably being a person having a full-time academic appointment in the Faculty of Medicine.

“The functions of the Advisory Committee would be as follows:

1. to recommend policies regarding the operation of the school,
2. to recommend faculty appointments, including the position of director of the school,
3. to advise on curriculum content and periodically review curriculum, and
4. without limiting the generality of the foregoing, to advise on admission policies, examination standards and all such appropriate matters pertaining to the operation of the school, and to assure the general excellence of the academic standards and professional training.”

The proposal then includes statements as to faculty arrangements in the community college and as, by co-operation, might be supplied by McMaster University Health Sciences Centre.

Suitable locations within Mohawk College and the McMaster clinical teaching units, in relation to the Hamilton Health Association's facilities and the community hospitals, are cited to show that adequate teaching and clinical resources are at hand or can be developed.

The initial enrolment will be 20 students.

Course Details

1. Admission Requirements: The successful candidate for admission to the college would have a Grade XII standing in the five year academic high school programme as provided by the Province of Ontario.
2. The length of the course will be 33 months.
3. The curriculum is such that the first year's programme raises the student's academic level in English, Mathematics and Biology to

Grade XIII level and introduces courses in the Life Sciences, Psychology and Human Biology. The second and third years introduce specific subjects referable to physiotherapy education and training and provide for clinical experience and an integrated systems teaching approach. A section of the proposal is devoted to an explanation of the integrated systems teaching concept and its methods of application.

COMMENTS AND CONCLUSION

The Committee recognizes that future provincial health service requirements, as they pertain to physiotherapists, have not yet been established. Further, the necessity for two levels of preparation (diploma or degree) is a matter that has not been sufficiently well studied. However, it appears certain that, for the foreseeable future, diploma physiotherapists will continue to be required and the question therefore with respect to this proposal is whether diploma preparation can be adequately provided within a community college.

It is interesting to note that representatives of two influential bodies with which physiotherapists relate, namely the Canadian Medical Association and the Canadian Physiotherapy Association, are on the Advisory Committee and, since the proposal is unanimously endorsed by that Committee, these two bodies must be in favour of such an educational programme. It may be concluded from this that the graduates from the new programme will be eligible for licence.

Next, the Committee believes that any educational programme for the diploma preparation of physiotherapists must be established within the sphere of a university health sciences centre to ensure the availability of highly qualified health sciences teaching staff and adequate clinical facilities.

There remains the question of whether a community college is an appropriate location for the establishment of a diploma programme.

Diploma programmes have a technological focus rather than a theoretical focus. Diploma programmes generally treat subjects from the applied arts and science viewpoint. As such, it is reasonable to propose that diploma programmes should be located in colleges of applied arts and sciences, with the university setting being reserved for degree and postgraduate degree educational programmes.

The Committee then believes that essential points relative to the proposal have been examined sufficiently for it to agree in principle that a diploma programme in physiotherapy can be established in a community college of applied arts and technology which is itself within the sphere of a university health sciences centre.

RECOMMENDATION 24

THAT the proposal that a new diploma course in physiotherapy be established at Mohawk Community College of Applied Arts and Technology, to be developed conjointly by the College, the Division of Health Sciences, McMaster University, and the Hamilton Health Association, be endorsed in principle.

2. ORTHOPTIC OPHTHALMIC TECHNICIANS

Terms of Reference

A request to the Minister of Health from the Department of Ophthalmology, Faculty of Medicine, University of Toronto, dated March 1968, for recognition and support for a School of Orthoptics at the Hospital for Sick Children, Toronto, was referred to the Committee for opinion and recommendation.

Background

The Committee had not up to that time begun to study the group of disciplines involved in the provision of visual care services. It therefore had to consider if this particular occupation could be properly studied in isolation from the other visual care occupations, bearing in mind that future patterns of delivering visual care services might well call for a closer integration of occupations in group or team formations, with attendant workrole modifications and an increase in numbers of orthoptists. From what could be understood from conversations with ophthalmologists and perusing the literature,* it did not appear likely that this occupation's role would alter markedly in the foreseeable future and, furthermore, the numbers involved were small, the training programme was short and capable of rapid expansion if the need arose. Therefore, the

* *The Practitioner*: July 1966, p. 43-ff.

Committee believed it could handle the referral and proceeded to do so.

PRESENT SITUATION

Role and Career Profile

The orthoptist, of whom there are at present seven working in Ontario, is usually employed in a hospital, a clinic, or in association with several ophthalmologists in private practice. Her primary function is to assess and treat defective binocular vision or defects in the action of the ocular muscles, to teach eye exercises and to assist in other non-medical, non-surgical methods of correction. Referral to an orthoptist by an ophthalmologist is usual before the orthoptist begins treatment; however, the orthoptist may be self-employed (in private practice) and render a direct service to her patients. If employed by a hospital, clinic or other agency, she functions within the policies of the employing organization.

There is at present no certification, registration or licensing of orthoptists in Canada. In 1970, the Canadian Orthoptic Council will begin to set examinations for certification or registration of orthoptists in Canada. In the meantime, however, Canadian candidates for certification as orthoptists are permitted to sit for certification examinations set by the American Orthoptic Council.

The newly chartered Canadian Orthoptic Society is the voluntary professional organization for orthoptists in Canada.

Education and Training

At present, there are in Ontario two training programmes which may be taken by persons wishing to become orthoptists. Both programmes have only recently come into existence and are conducted at the Hospital for Sick Children, School of Orthoptics, in Toronto, and at the Ottawa Civic Hospital.

These programmes are of 18 months' duration and consist of a combination of lectures, special individual instruction, training in orthoptic procedures, and a two-month course given by the American Orthoptic Council in certain American centres. No certificate or diploma is awarded upon successful completion of the

programme; however, the student is a candidate for certification by the American Orthoptic Council. The minimum admission requirement for the programme is completion of Ontario Grade XIII.

There are no student fees. The student taking the course at the Hospital for Sick Children is paid \$100.00 per month for 16 months and \$200.00 per month for the two months she spends in the United States attending that part of the course given by the American Orthoptic Council. This stipend is being paid by the Women's Auxiliary of the Hospital for Sick Children.

The core of the present training is the university medical school affiliated hospital with its special clinical facilities and highly qualified teaching resources. The training programme requires a professional group of visual care practitioners and medical scientists.

Comments and Conclusions

There is a provincial requirement for a small number of orthoptic ophthalmic technicians to supply needed services in the area of visual care. It is not foreseen that this need will grow appreciably larger in terms of numbers. The present training programme at the Hospital for Sick Children will go far, in the immediate future at least, to meet provincial needs. There does not appear to be a sufficient theoretical or scientific knowledge base that would suggest formal placement of this programme within a university; rather, the course is technical in nature and, as such, the present training arrangements at the Hospital for Sick Children's School of Orthoptics are appropriate for this occupation.

RECOMMENDATION 21

THAT the present general arrangements for, and location of, education and training of orthoptic ophthalmic technicians in the new School of Orthoptics at the Hospital for Sick Children be approved, and that, in so recommending, Council does not in any way wish to prejudice any statements it may make in the future about this discipline.

3. THE EDUCATION AND TRAINING OF NURSES FOR PUBLIC HEALTH SERVICES

Introduction

Council referred to the Committee the question of the preparation of nurses providing nursing services in public health settings. It has been recognized that nurses employed within the public health services are prepared at different levels. Particularly was Council concerned regarding the public health component within nursing education: how urgent and great is the need and how might this best be satisfied.

Present Situation

Immediately after the First World War, there was a great impetus to improve public health services. In 1920, courses to prepare registered nurses in public health nursing were offered by two universities in Ontario. Through the years, graduates of diploma schools of nursing have been prepared in universities to provide public health nursing service in courses of one-year in duration. With the development of baccalaureate programmes in nursing, the university schools of nursing saw that they could prepare nurses to provide preventive and curative nursing service to people in sickness and health in either hospital or in the community. The universities committed themselves to the principle of providing courses leading to a degree. In keeping with this principle, university schools of nursing began to phase out the one-year courses for public health nursing, retaining the baccalaureate programmes. At this time (1967) certificate courses are given only at the University of Toronto, Queen's University, and the University of Windsor. The latter two are discontinuing their courses in 1968.

In a recent census of nursing personnel in community health in Ontario, it was found that in official health agencies in Ontario 13.5 per cent of the registered nurses held a baccalaureate or higher degree, 72.5 per cent held a certificate or diploma in public health nursing and 12.8 per cent did not have qualifications beyond the basic diploma in nursing. It is interesting to note that, of the 3,254 nursing personnel employed in all fields of public health, only 112 were registered nursing assistants.*

* Black, I. and Outtier, M. "A Census of Nursing Personnel in Community Health," *Canadian Journal of Public Health*, Vol. 59, (January 1968)

The registered nurse working in the community functions in a variety of settings: homes, clinics, schools, and industries. She is called upon to assess the nursing needs of the patient and his family, consider a wide variety of influencing factors, and decide upon a course of action which mobilizes the patient's resources. She also contributes to the patient's knowledge about health maintenance and preventive care. She is a member of a health and a nursing team. The public health nurse uses skills for which a base may have been laid in a diploma nursing course but for which further preparation is required.

Future Health Service Requirements

It is difficult to be precise with respect to future requirements. The current emphasis regarding the general pattern of health care services is in the direction of ambulatory and community care. What effect this may have by 1980-85 on the numbers required for community nursing service personnel is difficult to forecast. Again, in the field of public health nursing it is recognized that nurses with different educational qualifications work in "team" arrangements, although little is known, beyond time and motion studies, about roles, work functions, what level of competence is required for what work performance, and what administrative and managerial techniques and abilities are required for efficient team operation.

Comments and Conclusions

In spite of not knowing precisely what future requirements might be, the Committee is of the opinion that the supply of public health nurses must be increased. This goal would appear to be in jeopardy because too few baccalaureate nurses are being prepared (these graduates are also qualified upon graduation to provide public health nursing services) and also because the universities are phasing out their certificate programmes in public health nursing which are designed to offer this extra preparation to diploma nurses.

The Committee has already considered the question of increasing the supply of baccalaureate-prepared nurses. With respect to university schools of nursing wishing to phase out certificate programmes, the Committee appreciates this viewpoint yet believes that these universities have a responsibility to the provincial health services to see that alternative provisions be made to ensure the continued training of these nurses prior to their discontinuing these programmes.

An alternative location in which certificate programmes in public health nursing could be placed are colleges of applied arts and technology and institutions of the Ryerson Polytechnical Institute type.

With regard to team nursing in public health agencies, the Committee feels that studies should be made vis-a-vis service requirements so that roles and work functions, levels of required competence, and the administrative arrangements and techniques required to permit efficient team function, may be identified.

RECOMMENDATION 20

THAT in respect to the preparation of Public Health Nurses:

- a. the Ontario Council of Health recommend, contingent upon the agreement of the institutions concerned, the establishment in Ryerson Polytechnical Institute, on an experimental basis for five years, a certificate course in public health nursing, and it is suggested further that an advisory committee be set up with membership from Ryerson Polytechnical Institute, public health nursing fields, and the University of Toronto, to study the curriculum and other matters associated with the programme;*
- b. universities which are offering certificate courses in public health nursing be encouraged to continue in this field at least while this matter is under study;*
- c. a study be conducted in at least two official agencies, one urban and one urban-rural, to determine the composition of the team, the functions and responsibilities of each category of nursing personnel and their relationships to each other, and financial aid be made available for each study.*

**4. EFFECTS OF AUTOMATION ON
MEDICAL LABORATORY PERSONNEL**

Council requested at its June 1968 meeting that the Education of the Health Disciplines Committee prepare a statement as to the effects of

automation on the personnel establishments in institutions and the influence this will have on medical laboratory services in the future.

The Committee at that time had not completed its work on medical laboratory technologist educational arrangements but felt it could examine this particular matter and so addressed itself to the request.

Present Situation

It is important to describe in brief the present situation with respect to medical laboratory personnel.

Occupational Status

The medical laboratory technologist, of whom there are an estimated 3,400 employed in Ontario (September 1968), may be employed in hospitals, medical clinics, doctors' offices, government laboratories, universities, biological supply houses, or industrial medical laboratories. His primary function is to perform tests and experiments on blood, body fluids, and tissues, at the request of a doctor, and to supply the doctor with information which will be of use to him in the diagnosis, treatment and care of patients. All activities of the technologist are performed at the request of senior laboratory personnel. The technologist makes no diagnoses on the basis of the tests he has performed.

The Canadian Society of Laboratory Technologists (C.S.L.T.) is the national professional organization.

Education and Training

The medical laboratory technologist in Ontario must complete a combined education and training programme of 2-3 years' duration, consisting of 12 months of classroom instruction (or 2 years in the Algonquin College programme) followed by 12 months' experience in a laboratory setting. On successful completion of this programme, the student receives a certificate which qualifies him to write registration examinations giving him the R.T. (Registered Technologist) Diploma in Laboratory Technology.

There are 60 approved programmes in medical technology in Ontario. Fifty-six of these are conducted in hospitals. In addition to these, centralized training programmes offering the didactic portion

of the course are given at the Toronto Institute of Medical Technology, the Hamilton and District School of Medical Technology, the London Regional School of Medical Technology, and Algonquin College of Applied Arts and Technology. The 12-month internship in a medical laboratory is arranged for students in the non-hospital programmes through affiliated hospitals.

The Toronto Institute of Medical Technology offers advanced training and refresher courses which, together with advanced work experience, allow the registered technologist to proceed towards advanced registration which is granted to technologists who have suitable qualifications and pass examinations set by the C.S.L.T.

Admission to the three-year Algonquin College programme requires that the applicant have completed Grade XII successfully. All other programmes require the completion of Ontario Grade XIII with seven credits including Mathematics, Chemistry and either Biology or Physics.

Fees for the Algonquin College programme are \$175.00 each academic year. There are no fees for the remaining 59 programmes and students in these are given a monthly stipend of \$125.00 while they are being trained. No bursary assistance is available for students in any of these programmes.

It is anticipated that the Toronto Institute of Medical Technology will greatly broaden the scope of its activities relating to the development and testing out of medical technology training and service programmes. Included in its range of interests are the many service technologies which have now been identified, and such administration and support activities as operations analysis technology, data management technology, applied mathematics technology, and biomedical engineering technology.

It is evident that the Toronto Institute of Medical Technology and the Department of Education's colleges of applied arts and technology are in the process of defining bases for co-operation which will, it is hoped, ultimately lead to the Departments of Health and Education sharing appropriately in the development, testing, maintenance and modification of training programmes over the broad field of the health technologies.

Effects of Automation

“Automation in the laboratory” is a term which is applied to the employment of new, highly complex, automated equipment by medical laboratories—hospital, private, or public—in the performance of diagnostic laboratory procedures. Its use however is limited and, in fact, quite restricted.

Medical laboratory science is composed of the disciplines of biochemistry, clinical chemistry, cytopathology, haematology, histopathology, and nuclear medicine. It has been found to date (June 1969) that only about a dozen common investigative tests or procedures may be performed efficiently and effectively by automated equipment.* For the foreseeable future, this number is not likely to increase greatly as compared with the total number of procedures and investigations it is expected medical laboratory services will be asked to perform.

Comments and Conclusions

Present general arrangements and locations for the preparation of medical laboratory technologists and technicians are appropriate. The Committee believes that, although future health services requirements for these personnel are not precisely known, the potential of provincial educational resources for expansion to meet such requirements is adequate.

While it appears that automation may not have marked effect on the numbers of medical laboratory personnel who are engaged in performing specific test and investigative procedures, it may have significant applications in terms of pre- and post-investigation requisitioning and reporting and in the linking of various regional laboratories as laboratory systems develop. That is to say, further applications of automation with respect to communications and data processing may well mean a saving in manpower numbers of medical laboratory personnel. To offset this possible gain is the number of

* Brief to the Commission on Relations between Universities and Governments prepared by: The Committee on Medical Technologists and Paramedical Personnel of the Section on Clinical Pathology of the Ontario Medical Association, January 1969.

Canadian Schedule of Unit Values for Clinical Laboratory Procedures, (1970 Edition), Dominion Bureau of Statistics, Health and Welfare Division, Institutions Section.

personnel required to operate and maintain the software and hardware involved in automated procedures.

However several other factors may affect the nature, mode of operations, and staffing patterns of future medical laboratories:

1. the nature of the demand that the health services will make upon medical laboratories;
2. the degree to which there could be alterations in laboratory organizations in the established health care institutions, through the establishment of co-operatives of health care institutions, through provincial activity in the area of regionalization, and as a result of the entry of big business into the laboratory field;
3. the nature of the future technological applications of laboratory methodology and data management technology in the medical laboratory.

This is the extent to which the Committee feels at this time it should move on these matters. Further study in the field of medical laboratory science will be made in the near future. It would request from Council that, as pertinent information becomes available to the various committees, it be transmitted to the Education of the Health Disciplines Committee.

SECTION V

Matters of Special Concern

During its deliberations, the Committee from time to time encountered and discussed aspects of health care arrangements and services which seemed somewhat tangential to their terms of reference. Two topics which appeared early in the life of the Committee kept recurring: the multiplicity of jurisdictions which control nursing education and training, and the usefulness of the present health services occupations to the public. The Committee came to appreciate that, with respect to the first matter, such a situation could hamper co-ordination and co-operation in planning for nursing education. With respect to the second matter, the Committee is of the opinion that the usefulness (or the cost-benefit relationship) of the health services occupations could be improved by objective evaluation of their work functions and utilization and, further, that the insights and understanding gained from such critical examination could be reflected in educational programmes for students. The rationale is that inappropriate utilization of primary, referral, and supportive services can best be corrected at the undergraduate level by demonstrating the proper work, functions and benefits of these services in relation to health services and societal needs.

These two matters are reported here, together with recommendations.

1. CO-ORDINATION OF CONTROLLING BODIES INVOLVED IN THE PREPARATION OF NURSING PERSONNEL

Present Situation

Nurses are prepared at three basic levels leading to degree, diploma, and registered nursing assistant qualifications. There are various programmes of education in various institutions which are responsible to various jurisdictions with respect to financial support, the provision of clinical facilities or direct supervision. Examples follow (as of January 1969).

Most funds for university schools of nursing are provided through the Department of University Affairs, while those for most diploma schools come through the Ontario Hospital Services Commission. The Department of Education is the jurisdiction controlling community colleges of applied arts and technology; in certain of these schools, diploma nursing programmes are being established. As well, part of the financing for colleges of applied arts and technology is the responsibility of the Department of Labour. This latter department has established and is responsible for three programmes to prepare nursing orderlies.

The Department of Education registers the Canadian School for Practical Nurses under *The Trade School Act*.

The Department of Health administers diploma programmes for nurses and nursing assistants in Ontario Hospitals and for nursing assistants in other training centres. Registered nursing assistants are also prepared in secondary schools (Department of Education) and under the Ontario Manpower Retraining Programme (Department of Education).

Lastly the Department of Social and Family Services approves Homes for the Aged and Nursing Homes where clinical facilities might be used for nursing students and auxiliary nursing personnel.

It is to be appreciated that these arrangements have evolved over many years, in response to a variety of needs and at times when the pressures, complexities, and pace of developments were not of the same magnitude as they are today. In addition, it must be noted that government is aware of these arrangements and has taken steps so that greater co-ordination at the planning stage may be achieved.

Comments and Conclusions

From the foregoing it may be seen that diverse institutions and jurisdictions are involved in establishing, financing, administering and maintaining educational arrangements for nursing personnel. Responsibilities for the provision of resource components, within a particular programme of education and among the various programmes of education, are divided. Such divisions render co-ordination and co-operation at all levels difficult and ponderous.

The Committee commends recent developments within government that aim at greater co-ordination in planning with respect to the provision of provincial resources to meet health services requirements. It makes the following recommendation with respect to education for nurses.

RECOMMENDATION 22

THAT the Department of Health find ways and means whereby interdepartmental communications could be developed, in order to facilitate co-ordinated planning for the development of educational programmes for nurses and auxiliary nursing personnel and to ensure the availability and effective utilization of required clinical facilities for the various programmes.

2. EVALUATION OF THE USEFULNESS OF EXISTING HEALTH SERVICE OCCUPATIONS

Introduction

There has accumulated in the past few years incontrovertible evidence attesting to the fact that health administrators and practitioners in almost every field related to health are experiencing difficulty in deciding how they ought to apportion among individual citizens—or citizens in collective groups—the “health services” which are available. Many matters in health are under study and review. Mass screening, the periodic health examination, the employment of computers to take histories and record data, the multiplication of health occupations, and the utilization of present human and physical resources, are examples of aspects of the health scene which are of concern.

In addition to these is the problem of co-ordinating and administering resources to maximize their benefits or usefulness, once it has been established what work functions should be performed by whom and in what work setting.

Background

One of the highlight features of health services in the past decade has been the increasing amount of information about the patient available to the physician. Much is produced via mass screening or the laboratory and much is unsolicited by the physician; that is, with increasing frequency, he is being provided with more information than he would ordinarily request in the course of his diagnostic investigations. It can be shown that patients and their doctors can be expected to be affected greatly—both for good and for ill—by a sudden massive release of unsolicited information from clinical laboratories¹. With biting clarity—and to some extent with tongue in cheek—Meador refers to the “laboratory-error syndromes” and “upper and lower limit syndromes” in the diagnosis of nondisease or latent nondisease which result in patient nonanxiety becoming anxiety².

Ammer³ traces the requirement in the States for an additional 9,000 medical technologists, with a work force of 54,500 extant (in 1967), and then demonstrates in a controlled study in Massachusetts that hospital laboratories are inefficient by industrial engineering standards and that laboratory technicians spend an extremely high percentage of their time on activities that cannot be directly related to any useful output.

In England, at the University of Birmingham Medical School and United Birmingham Hospitals, Cross found that errors in using hospital computer services with respect to patient data “. . . might be considered a considerable danger to the welfare of patients in so far as they may cause erroneous information to be fed back to wards and to departments.”⁴

White, at Queen’s University, Kingston⁵, believes that “misuse of data processing and other technological advances more sophisticated than anything previously known in the practice of medicine will depend upon a clarity of scientific thinking for which the profession in the past has not been noteworthy.” And Millis observes⁶ “. . . the rate of accumulation of knowledge is exponential, while the rate of improvement in skill is probably not more than linear.”

Solandt⁷ believes that the setting of goals and the application of the techniques of systems analysis and good industrial engineering together with the intelligent application of automation "... can result in substantial improvements in health care while greatly reducing the expenditures required to achieve these improvements."

Comments and Conclusions

The Committee believes that improvement can be made in utilization of health services by health care and health care related personnel. The first step is that of the evaluation of the services themselves so as to discern how appropriately the people of Ontario are being served by their health workers, and how efficient health workers are in carrying out the task which they are undertaking. The Committee also believes that there are existing techniques which can be utilized to obtain such information⁸.

RECOMMENDATION 22

THAT the Council of Health consider as an urgent matter the need to obtain for use by the Committee substantial information concerning:

- a. the appropriateness of the care which health workers are providing for the people of Ontario; and*
- b. the efficiency of health workers of Ontario in carrying out the tasks which they are undertaking.*

RECOMMENDATION 23

THAT the Council of Health, in order to obtain the information which is needed by the Committee, proceed as soon as possible to identify, commission and adequately support experienced and proven individuals and/or organizations to:

- a. identify manageable problems in the areas of uncertainty alluded to in the preamble to this recommendation;*
- b. draw up investigative projects bearing upon the resolution of the problems so identified; and*

- c. *work through and bring to completion the investigative projects which, in the judgement of the Council, seem likely to provide the Committee with information bearing directly on the Committee's capacity to function effectively in respect to its terms of reference.*

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